





**R**equirement  
 Do you need to automatically empty bulk containers of powdered raw materials with weight control, then transfer the mixture obtained to the packing section? The blend can be packed in bulk bags and/or sacks, tracing and supervising the entire process according to Industry 4.0 requisites.

**S**olution  
 Gimat srl has developed a model installation that can be implemented and configured on the basis of the individual customer's needs, entirely using Gimat machinery so that the company will always be able to ensure rapid, effective customer service.

The solution developed is suitable (on request) for areas classified Atex 21-22 and conforming with directive 1935/2004 for contact with food products, as well as with the machine directive 2006/42/CE. This solution consists of the following elements:

- One or more supporting structures for emptying bulk bags with vibrating hopper to ensure secure emptying and dust seal of the Bulk Bag. In case of products that are particularly difficult to empty, it may be helpful to add, at a later date, a kit of lateral pistons with direct action on the bulk bag to lift it laterally and help the powders to slide.



A pneumatic uptake cone is connected to the structure, complete with valves and a possible agitator with the function of ensuring constant feeding of the powders to the underlying pneumatic conveyor system under negative pressure.

- A vibrating hopper with a capacity of about 200 liters for emptying sacks for small pre-weighed quantities with an optional dedusting cap and pneumatic product uptake cone.
- Blending system using horizontal or vertical reel mixers in different capacities depending on the quantity and type of raw material to be blended and the cleaning requirements. Mixer designed to be placed under a vacuum, permitting rapid transfer of the powders inside it, with control of the weight of the individual components. This solution prevents down-time due to the interruptions typical with traditional pneumatic batch conveyors with cyclone filter and discharge valve. The result is a solution that is easier to clean since it involved fewer parts.
- Frame of adequate size to support the mixer and bulk bag to be filled underneath
- Bulk bag filling system with dust seal equipped with pneumatic sleeve and double chamber to permit venting of the dust particles generated in the mixer during the filling process. This creates a closed system that reduces the waste of raw materials and eliminates the need to use an additional filtration unit.
- Conveyor system with flexible screws that are easy to clean and can convey the powder blend over lengthy sections even incorporating bends without allowing the mixture to separate and

ensuring that its organoleptic characteristics remain unchanged. The conveyor system is designed to supply packing equipment downstream.

- A vertical packing system with a reel for sacks holding up to 5 kg with tape extraction and incorporated metal detector. The reel packing system is usually chosen and purchased directly by the client for GIMAT to install in the system.
- Alternatively, it is possible to feed and does, with the conveyor system, directly into a bagging scale on wheels. This is a semiautomatic device produced by GIMAT for open wide-mouth bags holding 10 to 25 kg, with optional incorporated metal detector.
- Control cabinet with Siemens S7 1200 or 1500 PLC depending on the number of stations involved and main HMI panel on the front. Junction boxes with relative HMI panels for control of the system from different workstations. All the panels and the system are installed in a network with remote access, and can exchange data (dosage history, recipes used, etc.) with the company's management system.

